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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/775,138	02/11/2004	Naoki Mizoguchi	36856.1208	2430

54066                      7590                      10/19/2006

MURATA MANUFACTURING COMPANY, LTD.  
C/O KEATING & BENNETT, LLP  
8180 GREENSBORO DRIVE  
SUITE 850  
MCLEAN, VA 22102

EXAMINER

JACKSON, BLANE J

ART UNIT	PAPER NUMBER
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2618

DATE MAILED: 10/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/775,138

Applicant(s)

MIZOGUCHI ET AL.

Examiner

Blane J. Jackson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 7-11 is/are rejected.
- 7) ☒ Claim(s) 4-6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                            |                                                                                         |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

## DETAILED ACTION

### *Response to Arguments*

Applicant's arguments with respect to claims 1-11 have been considered but are moot in view of the new ground(s) of rejection. Original prior art Kundu teaches a dual mode dielectric waveguide bandpass filter comprising an upper floating metal plate (12) and a lower metal plate (13) including an opening to couple two resonance modes where plate (13) is grounded in actual use, figures 1, 2 and 16, column 5, lines 10-15. However, Kundu does not clearly teach two resonance modes are coupled by providing an opening having a selected shape in a *ground electrode*. Consequently, prior art Fieduszek, in view of the claim language, clearly teaches this distinction and is applied in the rejection to follow.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 7, 8 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Fieduszek et al. (US 5,484,764).

As to claim 1, Fieduszek teaches a dual-mode bandpass filter (figure 2) comprising:

A dielectric substrate (figures 2 and 3, column 5, lines 10-28, dielectric layers (58, 60 and 62)),

A resonator electrode disposed at a certain height in said dielectric substrate (figure 3, column 4, lines 3-43, three resonators (38, 40 and 42) presented where two to five resonators by be employed in the resonator stack and column 5, lines 61-65, vertical spacing between the resonators as measured along the vertical stack axis is less than one-quarter or one-tenth of a wavelength to avoid generation of spurious modes of vibration of the electromagnetic signal within the filter (32)),

A ground electrode disposed at a different height in said dielectric substrate field of said resonator electrode so as to oppose said resonator electrode (figures 3-8, column 4, lines 3-30 and line 61 to column 5, line 9, ground electrode (46) with iris (48) and ground electrode (44) with iris (50) for coupling electromagnetic signals between the resonators, both ground electrodes coupled to each other and the top and bottom walls of the housing, the housing walls further serve as ground planes),

Said ground electrode includes at least one opening whereby a resonant electric field of said resonator electrode is controlled to couple two resonant modes generated in said resonator electrode (column 4, lines 3-15 and column 5, lines 29-65, each resonator has two basic modes of oscillation or resonance).

As to claim 2, Fiediuszko teaches a dual-mode bandpass filter according to claim 1 wherein the opening is disposed at a position substantially opposing said resonator

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electrode (figure 4, column 6, line 62 to column 7, line 53, two resonators with ground plane (44) spaced between with central opening or iris (48)).

As to claim 3, Fiediuszko teaches a dual-mode bandpass filter according to claim 1 wherein said ground electrode is embedded in said dielectric substrate (figure 3, column 4, lines 4-30, ground electrodes (44 and 46) spaced apart from the resonators by a dielectric material).

As to claim 7, Fiediuszko teaches a dual-mode bandpass filter according to claim 1 wherein each opening has one of a substantially rectangular, substantially circular shape, a substantially rhombic shape and a substantially polygonal shape in plan view (column 8, lines 11-28, figure 8, the coupling iris is circular and figure 9, elliptical).

As to claim 8 Fiediuszko teaches a dual-mode bandpass filter according to claim 1 further comprising an input/output coupling circuit coupled with said resonator electrode (figure 4, column 6, line 63 to column 7, line 12, input/ output coupling pads (100 and 104)).

As to claim 10, Fiediuszko teaches a radio communication apparatus comprising the dual-mode bandpass filter according to claim 1 (figure 1, column 3, line 60 to column 4, line 2).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fiediuszko et al. (US 5,484,764) in view of Kundu (US 6,326,865).

As to claims 9 and 11 with respect to claim 1, Fiediuszko teaches a dual mode filter applied to a communications circuit, figure 1, but is silent as to a radio communication apparatus comprising a duplexer including at least one dual-mode bandpass filter.

Kundu '865 also teaches a dual mode filter, though a microstrip design comprising a ring resonator, discloses application as a duplexer comprising at least one (two) dual mode bandpass filters, figure 9, column 1, lines 45-67 and column 6, lines 36-65.

It would have been obvious to one of ordinary skill in the art at the time of the invention to realize the general application of the bandpass filter of Fiediuszko as suggested in Kundu such that the dual-mode bandpass filters provide excellent signal separation when combined to form a duplexer.

***Allowable Subject Matter***

Claims 4, 5 and 6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Blane J. Jackson whose telephone number is (571) 272-7890. The examiner can normally be reached on Monday through Friday, 9:00 AM-6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (571) 272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read "Blane J. Jackson". The signature is fluid and cursive, with the first name "Blane" being more legible than the last name "Jackson".